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FIRE PREVENTION AND FIRE PROTECTION IN RELATION TO THE PUBLIC WATER SUPPLY¹

By FRANK C. JORDAN²

America's fire loss has reached the proportions of a national calamity and we are becoming a criminally careless people. Burning four or five hundred million dollars worth of property every year has ceased to be a matter of no concern. Our increasing fire loss stands as a serious indictment of the American public. Our 1921 fire loss means that five hundred million dollars worth of natural and created resources are wiped out of existence. There is a prevailing opinion that fire insurance companies in some mysterious way make good our loss by fire. The proceeds of a fire insurance policy may reimburse the individual for the loss he has sustained, but no amount of money can restore a burned structure. When a fire occurs everybody loses.

During the World War, we were bitter in our denunciation of the German nation by reason of the wanton destruction of thousands and thousands of acres of French forests by the German army. Our papers gave picture after picture depicting the burned and damaged forests, and we took a vow that Germany must be made to pay for this damage. In the year 1921, American forests were burned equal in acreage to eight times the total acreage destroyed or damaged in France during the four years of the World War, and 75 per cent of all of our 1921 forest fires were due to human agencies and could have been prevented by care and vigilance on the part of forest users. Sufficient timber was burned in American forests last year to build 5-room houses for the entire population of such cities as Kansas City, New Orleans, Washington, Seattle, Portland, Rochester or Indianapolis. America's fire loss during the year 1921 exceeded five hundred million dollars, this amount covering insurable property only and not including loss of forests, standing grain, pasture lands, etc. Mr. H. A. Smith, President of the National Fire Insurance Company of

¹ Presented before the Philadelphia Convention, May 16, 1922.

² Secretary, Indianapolis Water Co., Indianapolis, Ind.

Hartford states, in an article appearing in the *New York Journal of Commerce*, that disbursements by the insurance companies during 1920, covering losses and operating expenses, exceeded the losses and expenses for any other year in the history of our country with the exception of the year 1917. These figures also show that the amount paid out by the insurance companies in the year 1906, the year of the San Francisco fire, totaled \$359,642,372. We remember well that the fire loss for that year was a serious shock to many of our great financial institutions and that it caused great concern all over our country. The losses and expenses for the year 1920 exceeded the 1906 insurance figure by one hundred and five million dollars. Generally speaking the public concerned itself very little about the matter.

A comparison of the fire losses for the years 1906 and 1920 gives us an interesting picture of the workings of the public mind.

The actual fire loss on created property in 1906 was \$459,710,000, an amount \$129,000,000 greater than the loss on created and insured property in 1920. Much of the San Francisco property carried little or no insurance, the insurance companies paying out only \$359,000,000 during the year 1906. The public, therefore, had first hand knowledge of the terrible ravages of fire and great was the clamor for fire prevention. This enthusiasm wore off in a short time and the public apparently contented itself by covering its property with an insurance policy and forthwith passed the burden of worry to the insurance companies. In 1920, with a fire loss of \$330,000,000 on created and insured property, the insurance companies paid out \$464,000,000 covering fire loss and operating expenses. Having only second hand information in regard to the ravages of fire, the public did not greatly concern itself.

A careful survey seems to indicate that the only answer which our country makes to this ever increasing fire loss is to add largely to its insurance premiums and to its fire departments, both in men and equipment. Today our fire departments are recognized as the most efficient in the world and well they need be. American travelers to foreign lands are prone to make rather uncomplimentary and facetious remarks in regard to the antiquated fire fighting equipment maintained by the European cities, entirely overlooking the fact that, while we have been busily engaged in increasing the efficiency of our fire fighting equipment, the American public has been even more busily engaged in increasing its careless habits. We are today confronted with the lamentable fact that our country, with all of its

wonderful development and fire fighting force and equipment, has an annual fire loss of almost \$5.00 per capita, whereas the foreign countries, with antiquated fire fighting equipment, but with careful habits reinforced by severe personal liability laws, have an annual per capita fire loss ranging from 11 to 60 cents.

The depletion of our resources by fire is in itself an exceedingly serious matter, but the seriousness of the financial loss is greatly exceeded by the seriousness of our loss of life due to fire. Our 1920 figures show that 15,219 persons were burned to death in the United States and 17,641 were seriously injured. Eighty-two per cent of the dead and injured were mothers and children, and 92 per cent of the fires that caused these fatalities were the result of carelessness or negligence. Carefully prepared statistics indicate that approximately 80 per cent of all the fires occurring in the United States are preventable.

In view of our appalling loss in life and property, it is imperative that all great organizations, such as the American Water Works Association, give most careful attention to the question of fire protection and fire prevention and exert every effort to bring about the elimination of all of those fires which are classed as preventable. It is high time that we turn the spotlight of publicity on our fire loss, make a careful study of the causes of our fires and map out a carefully prepared campaign of education, to the end that the right-thinking people of this country may understand the seriousness of our fire loss and take proper steps to cut this loss to a minimum figure. This campaign of education should be followed by the enactment of rigid laws covering personal liability for preventable fires, and these laws should be enforced to the letter, so that the irresponsible or evil-minded citizen will be compelled to eliminate preventable fires. It has been truly stated that a man who has a preventable fire picks the pockets of his neighbors, either through the medium of fire insurance or an unjustified use of the public fire department which all must support. It is equally true that the fire departments are not maintained to protect a man from the results of his negligence. When he calls upon the city in any such case he should be made to pay for this service. No civilized country should expect its firemen to risk their lives in fighting fires which are easily preventable. In many of the foreign countries, a man who has a fire must prove to the court that he was in no way responsible for the fire or he is subjected to a fine and the loss of his insurance. The time must come when the

United States will enact laws covering personal liability for preventable fires.

The public conscience has become dulled to the necessity for any fire prevention measures. We feel relieved when we read the words "fully covered by insurance." We feel that some soulless corporation called an insurance company will shake a tree bearing a never ending crop of dollars and gather up this money and hand it to the insured, fully compensating him for all loss. We overlook the fact that our tremendous fire loss, plus the cost of operating insurance companies, is borne by all of us in the way of insurance premiums and that this amount constitutes one of our greatest national expenditures. Only a few years ago the average insurance agent took little interest in the subject of fire prevention, the fact of an increase in fire loss being used by him as an argument to his clients to take out more insurance. The progressive insurance agents of today, however, take a different view of the matter. President F. J. Fox of the National Association of Insurance Agents gives voice to the following statement: "Although it may seem to the shortsighted agent poor business to recommend to an insured that if a certain pile of rubbish is disposed of, the rate can be reduced from \$1.25 to 13 cents, as a matter of fact such advice is a part of the duty every agent owes to his clients even though such advice may reduce the actual premium rate involved." He further states that: "It is a notable fact that the press of the country has been active in aiding communities to reduce their fire losses, and it is absolutely essential that reputable agents throughout the country co-operate with every ounce of energy to the same end."

No organization in the United States should be more interested in the subject of fire protection and fire prevention than the American Water Works Association. I sincerely trust that this Association will at once go on record, pledging its unqualified support to any movement looking to the curtailing of our fire loss. I desire to speak a word in commendation of the fine service which is being rendered by the National Fire Protection Association, and to enlist your support of that organization. Through the distribution of carefully prepared literature, and the putting forth of unstinted efforts in the cause of fire prevention, it is rendering a nation-wide service, the value of which cannot be measured in dollars and cents. I should be glad to see our Association affiliate with the N. F. P. A., and it seems to me that it would be wise for our Association to urge all of its members to join the N. F. P. A. and co-operate with it in every way in the great campaign of fire prevention.

If the fire prevention program is to be successful, it will be due in no small measure to the co-operation on the part of the water plant superintendent. His first duty will be to see that his property is fully equipped to furnish adequate fire protection service. This may require the expenditure of a considerable amount of money, but the value of the adequate fire protection service will far outweigh fixed charges on the extension and additions necessary to bring the plant up to a point where it can furnish excellent service. The Committee on Fire Prevention and Engineering Standards of the National Board of Fire Underwriters of New York has made a large number of reports on the water departments of the country. If their suggestions are carried out these water departments would be in position to furnish excellent service and we should to the fullest extent co-operate in the fire prevention program. During the past fifteen years, the National Board of Fire Underwriters has made several reports on the Indianapolis Water Company's property. We have found these reports exceedingly valuable, in that they have pointed out our weak spots and have guided us in mapping out our future extensions and additions. Our Company is making a conscientious effort to comply with all of their suggestions, and it is our opinion that the increased efficiency of our water service has justified our expenditures. On a number of occasions they have modified some of their requests or requirements after getting our viewpoint. In all of our dealings with the representatives of this organization, we have found them broad minded and fair. I trust that there may be the finest spirit of co-operation between all of our members and the National Board of Fire Underwriters, so that the water plants over the United States may furnish a thoroughly satisfactory fire protection service. A high fire loss in a city raises a question as to the integrity of the water plant to the same degree that a high typhoid rate raises a question in the minds of the people as to the purity of the water supply. These assumptions on the part of the public are not entirely true, but nevertheless they exist in the minds of many of our citizens. Years of patient effort have largely eliminated typhoid fever. The same patient effort will eliminate our preventable fires.

The up-to-date water works official made every effort to eliminate typhoid, and he should work just as hard toward the elimination of preventable fires. If a fire prevention campaign has been inaugurated in his city, he should co-operate with it. If none has been inaugurated, he should initiate one and do his utmost to carry it through to suc-

cessful conclusion. Acting on this assumption, and on the invitation of Mr. W. J. Curran of the Indianapolis Salvage Corps, and E. M. Sellers, Manager of the Indiana Inspection Bureau, the writer suggested to the Indianapolis Chamber of Commerce the formation of a Fire Prevention Committee. This was done in the early part of April, 1921, and the writer was made Chairman of a Fire Prevention Committee consisting of about 1,200 Indianapolis citizens. At the outset, we made a most careful study of our fire loss and were amazed to find that it had increased from a per capita loss of \$1.75 in 1910 to a per capita loss of \$5.10 for the year 1920, and that the average Indianapolis citizen had increased his careless habits in a greater ratio than the City had been able to increase its fire fighting facilities. Our investigation showed that in the year 1910 our city had 5.8 fires per thousand population, and that this had increased to 10.7 fires per thousand population during the year 1920. After going into this matter with great care, we determined that this great fire loss could not be checked by any campaign of one week or one month's duration. When our campaign was launched we went into it determined to spend four or five years, if necessary, to achieve the results for which we were working, namely, a cleaner and healthier Indianapolis with an exceptionally low fire loss. We realized that the success of our undertaking depended almost entirely upon the one word, "Co-operation." I am pleased to report that we have received as fine a spirit of cooperation as has ever been accorded to any city-wide undertaking in the City of Indianapolis.

At the outset of the 1921 campaign, the City evidenced its interest by defraying the expenses of the Fire Prevention Campaign, and during the 1921 Campaign, and the same will be true of the 1922 Campaign, not one dollar has been put up by any one who might in any way be interested from an ulterior motive. The Fire Department, and in fact all City Departments, have co-operated in an exceptionally fine way and have done their utmost in the cause of Fire Prevention. No finer service has been rendered by any one than that rendered by the public and parochial schools, and a large measure of the success of our campaign has been due to the exceptionally fine co-operation accorded by these organizations. Through the instrumentality of thousands of fire prevention essays, programs and many, many talks by teachers, the subject of fire prevention is being taught to the younger generation. It is our firm conviction that within a few years a careless people, and a consequent high fire loss, will be un-

known. The churches, sunday schools, and civic clubs have at all times taken a lively interest in the subject of fire prevention and have given much publicity to our campaign. The Board of Sanitary Commissioners took upon its shoulders the burden of removing all rubbish, or any refuse of any kind which had accumulated around the homes. Two hundred and fifty thousand pieces of fire prevention literature were distributed, and fire prevention cards are still hanging in thousands of Indianapolis homes. Added to this co-operation from the city officials, schools, clubs etc., was the exceptionally fine co-operation from citizens in general. The net result of all of these efforts during 1921 was a great decrease in our fire loss and a surprisingly large decrease in our loss of life. Our 1921 fire loss showed a decrease of \$550,000, as compared with 1920. From April 1, 1921 to the present time but one person has been burned to death in our city instead of our usual annual loss of from 12 to 20. The greatest result, however, of our 1921 Fire Prevention Campaign, was the laying of the foundation for a greater fire prevention effort. Our 1922 program holds promise of even greater success than was attained in 1921.

Generally speaking, our 1922 campaign is divided into five separate and distinct campaigns, namely:

"Let's Clean 'Er Up" Campaign, running from April 3 to April 29.
Fire Resistant Roof Campaign, April 12 to May 13.

City Beautification Campaign, May and June, closing with the awarding of prizes on June 15.

Clean-Up and Fire Prevention Publicity Campaign, October, 2 to October 16.

No Accident; No Fire Week, November, 1 to November 8.

After mapping out our 1922 program, we received a pledge of active co-operation from the new city administration, and I am pleased to report that the Mayor and every department of his administration are giving unqualified co-operation. The City Council appropriated funds and our program was launched with the assurance of city-wide support. We distributed a large amount of "Let's Clean 'Er Up" literature, and the newspapers gave much space. As a net result our city has experienced the best clean-up in its history. Inspectors from the fire and police departments inform us that they are finding it necessary to serve but very few official clean-up notices.

During the months of January and February of this year, our city had occasion to realize the absolute necessity of the elimination of the shingle roof, which according to our Fire Chief is our greatest fire

hazard. We have approximately 60,000 buildings covered with wooden shingle roofs, and during the first two months of this year we had 850 shingle roof fires, the maximum number for any one day being on February 16 when we had 63 fires, every one of which was due to a defective flue or sparks on a shingle roof. We have at this time a city ordinance which prohibits the use of wooden shingles on new buildings, and provides further that if 50 per cent of a roof is damaged the entire roof must be replaced with a fire resistant roof. This ordinance, however, fails to specify a time when all shingle roofs must be replaced with fire resistant roofs, and the change is therefore very slow. A great many of the cities over the country have rigid ordinances in reference to shingle roofs, and the value of these ordinances will be realized when we compare our record of more than 1,200 shingle roof fires in 1920 with a record of New Orleans where there were 24; Cincinnati 56; Louisville 110; St. Paul 99 and Philadelphia 110. We held a large number of conferences with the Indianapolis roofers and explained to them that, if our campaign to eliminate the wooden shingle roofs was successful, it would be because of the co-operation of the roofers, and that in order to coöperate it would be necessary for them to do three things:

1. Educate the public to the fact that good roofing is an asset, whereas, inferior roofing is a liability.
2. Put on good roofing at a fair price.
3. Put on good roofing on the payment plan.

I am very glad to say that practically all of our roofers are co-operating in a fine way and have assured us that they would do everything in their power to further this program. We carried some publicity in our papers in the latter part of March in reference to the absolute necessity of eliminating the wooden shingle, and prepared to launch a strenuous campaign from April 12 to May 10. The public, however, beat us to the proposition and roofers in Indianapolis tell us that they have all the work which they can possibly handle for some time. Our Building Commissioner is issuing from 35 to 60 re-roofing permits every day, and more will be issued later on when we get more roofers on the job.

We are arranging to conduct a city beautification campaign on the theory that, if we can replace a rubbish pile with a flower bed or vegetable garden, there will not be much liability of another rubbish pile growing on or near that place. In other words, we hope to make a geranium or tomato grow where rubbish formerly flourished. We

are perfecting an organization in every ward with two chairmen, a man and a woman, and 200 or more ward workers. Our plans contemplate a yard beautification contest with fifteen or more prizes for each ward and 800 certificates of merit to be distributed throughout the city. Approximately one-half of the prizes and certificates of merit will be awarded for the best yards, and an equal number for the yards showing the greatest improvement. In addition to the ward prizes, we will have 15 to 25 major prizes to be awarded by the Mayor for the most beautiful lawns and premises in the city. We are availing ourselves of the services of the Park Department, City Planning Commission, Board of Sanitary Commissioners, and in fact, all city departments having to do with the general appearance of our city. The foundation is being laid for a city-wide effort which should, within the near future, make our city one of the beauty spots of the country.

In the fall, we will have a Clean-Up Campaign and a Campaign of Education in regard to fire prevention measures. This will be followed by a "No Accident; No Fire Week" in November.

Our Committee on Laws and Ordinances is giving careful attention to the preparation of a City Ordinance making rigid provisions for the elimination of the shingle roof, and is also preparing a bill for presentation to the next Legislature covering Personal Liability for Preventable Fires. We are just beginning to realize the length and breadth of a fire prevention program. Our experience indicates that it achieves the following results for a City:

1. Makes for better health conditions through the instrumentality of clean-up programs.
2. Decreases fire loss.
3. Decreases the loss of life due to fire.
4. Is essentially a safety first campaign.
5. Makes a city beautiful through the elimination of rubbish piles, dilapidated buildings and other fire hazards; and
6. Makes better American citizens.

Our neighboring city, Cincinnati, has achieved wonderful results through the instrumentality of its fire prevention campaign, which has been waged unremittingly for the past several years. Their records show a reduction in fire loss of more than one and one-half million dollars a year, a reduction of 20 fire houses, with a consequent reduction in taxes and an insurance rate which is said to be the lowest in the United States. What Cincinnati has done, Indianapolis can do, and what we can do every American city can do.

In order to get this matter before the Association in concrete form, I desire to present the following preambles and resolutions and move their adoption:

WHEREAS, America's fire loss has reached the proportions of a national calamity and as a nation we are becoming criminally careless; and

WHEREAS, The United States and Canada are suffering from economical impoverishment due to excessive annual losses of their created and natural resources from preventable fires; and

WHEREAS, Proper fire prevention and extinguishment is a subject closely related to and affecting the competent conduct of the waterworks systems of the states, provinces and municipalities of these countries;

It Is Therefore Resolved, That the American Water Works Association pledges its active interest in furthering and participating in all proper efforts to reduce the fire losses of these countries and calls upon its members actively to initiate, assist and encourage in their various localities movements to this end.

I would further move that the American Water Works Association co-operate with the National Fire Protection Association and that effort be made to induce our members to join the National Fire Protection Association.

I would further move that the American Water Works Association call upon all of its members to co-operate with the National Board of Fire Underwriters to the end that each water plant may furnish adequate fire protection service.

DISCUSSION

ALLEN HAZEN.³ This is one of the most important subjects for us to consider. Mr Jordan has presented it admirably. He spoke of the conditions in America as compared with the conditions in Europe. I have made that comparison. I am much interested in it and I intended to tell you a lot about it, but I am not going to. You do not have to go to Europe to get the comparison. Only a few miles from our shores, Havana, a city as large as New Orleans, is practically free from fire losses. Insurance is practically unknown there. I see some of our members here who know Cuban conditions and can tell you about that. During the war I was asked by the President of the Cuban Republic to examine the water supply of Havana and see what it needed. The first thing I found was that there was no fire protection whatever. The pipes are not laid out for fire protection, they are laid out for distribution only. They are barely big enough for that.

³ Consulting Engineer; Hazen, Whipple and Fuller, New York, N. Y.

There is no fire protection in the pipe system of Havana. There is one fire house in Havana, built by the Americans because it looked rotten to see the city of Havana without a single fire house, so it stands there on one of the principal streets carrying the name of the second American governor. I do not know that it was ever used. In all the time I was there, I never saw anything happen to that house. It is there as a monument to American operations. I think Mr. Jordan will find that after his shingle roofs have gone the next step, in the central part of the city at least, will be the wooden floors. I think they will follow the shingle roofs, as they did in Havana fifty years ago. You will see in Havana a beautiful city as large as New Orleans, 400 years old, and which, in that 400 years, has not had a destructive fire.

I have just received from Camaguey, Cuba, one of the important cities of the island after Havana, a letter dated May 11, in which the writer, J. Garcia Montes, Jr., states in regard to fire draft:

"It was consequently left out of consideration in averaging, because of the fact that fires take place in Camaguey at the rate of two in ten years."

LEONARD METCALF:⁴ After listening to this admirable paper of Mr. Jordan's, it occurred to me that it might be interesting to say just a personal word in regard to his work. This is the work essentially of a waterworks man; it is due to Mr. Jordan's enthusiasm and the way in which he was able to inspire confidence, in the Chamber of Commerce, the city officials and the good citizens of Indianapolis. Unsought by him, the Mayor, having that degree of confidence, offered him a fund of something like \$2,000 to take up the initial work incident to this investigation, to enable him to visit different cities in this country, study their methods of fire fighting, get in touch with the underwriters, and through his interest and energy the underwriters took the thing up actively, sent representatives to Indianapolis, who put their fire department, I believe, through a course of stumps and made suggestions which were of great value to them. Through his interest and activity the Chamber of Commerce came to play an active part and has inspired the confidence of the men of means of the community who were ready to go down into their pockets to further the work. The thing of significant interest, it seems to me, to this organization, is that his work can be duplicated by many

⁴ Consulting Engineer; Metcalf and Eddy, Boston, Mass.

of you men, and this organization is in a position to help you in that work. Of course, Mr. Jordan will be glad to help you and tell you what he found best while in his investigations. If such a work could be taken up by even a handful of men of this organization and produce such results as Mr. Jordan has been able to get in Indianapolis, it would be of immense advantage to this country.

J. N. CHESTER:⁵ As others have said, I think this paper is a magnificent one. I have all along been handing Jordan the palm as the chief propagandist for water companies. It is on this subject that I want to say a few words, especially to the privately owned waterworks superintendent. Do any of you here think, after hearing this paper and seeing what Mr. Jordan has accomplished in Indianapolis, do any of you suspect for a minute that that waterworks superintendent is not in good standing in his community? That his word is ever doubted? That they are finding fault with the waterworks and looking down upon them? I lived in Indianapolis in the day when I do not think the waterworks superintendent stood as high in the community as we know Mr. Jordan stands today. It is probably not all due to the good services he has rendered, but to the interest he has taken in civic affairs and what he has done for the public generally that has put him not only at the top of the list as a private waterworks superintendent, but heading the list of public spirited citizens in that community.

D. R. GWINN:⁶ In addition to the work Mr. Jordan has done in Indianapolis, he has been going up and down the state holding meetings for the extension of fire protection work. He came to our city some time ago, addressed the luncheon of the Chamber of Commerce and had a fine audience that listened to what he had to say with a great deal of interest. I am sure they are going to take up the work Mr. Jordan started in Indianapolis. He has been to Evansville, Terre Haute and Fort Wayne and has started these campaigns in other cities. We have endeavored to interest the chambers of commerce and the municipal officers in a similar work in the past.

⁵ Consulting Engineer; J. N. Chester Engineers, Pittsburgh, Pa.

⁶ President, Water Company, Terre Haute, Ind.